

REMARKS/ARGUMENTS

Reconsideration of the application is requested.

Claims 1-15 remain in the application.

In item 4 on pages 2-8 of the above-mentioned Office action, claims 1-5 have been rejected as being unpatentable over Applicant Admitted Prior Art (AAPA) in view of Okayasu (US Pat. No. 6,433,567 B1) under 35 U.S.C. § 103(a); and claims 6-11 and 14-15 have been rejected as being unpatentable over Applicant Admitted Prior Art (AAPA) in view of Oglesbee et al. (US Pat. No. 6,331,764 B1) under 35 U.S.C. § 103(a).

As will be explained below, it is believed that the claims were patentable over the cited art in their original form and the claims have, therefore, not been amended to overcome the references.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claim 1 calls for, inter alia:

a heating device configured to heat said memory material at different heating rates to a programming temperature, said memory material having a relatively high resistance or a relatively low resistance after cooling, depending on the heating rate;

said heating device having a switching device and a heating element in direct proximity with said memory material, and said switching device having a field-effect transistor with a drain region formed as a heating region.

Claim 6 calls for, inter alia:

a heating device configured to heat said memory material at different heating rates to a programming temperature, said memory material having a relatively high resistance or a relatively low resistance after cooling, depending on the heating rate;

said heating device having a switching device and a heating element in direct proximity with said memory material, and said heating element has a diode device.

As already indicated in the specification of the instant application, the memory cell for permanently storing data, which is known in the prior art, includes a memory material capable of assuming a first high resistance state and a second low resistance state, a heating device configured to heat the memory material at different heating rates to a programming temperature, the memory material having a relatively high resistance or a relatively low resistance after cooling, depending on the heating rate. However, it is not known from the AAPA to provide a switching device of the heating element in direct proximity with the memory material, wherein the switching device has a field effect transistor with a drain region formed as a heating region.

Okayasu discloses a CMOS device including a heater cell, which is arranged so as to evenly distribute heat to the whole chip of the CMOS device. The drain and source of the MOSFETs of each heater cell are connected to the supply voltages VDD and VSS.

The combination of the features of the AAPA and Okayasu does not lead to the subject matter of claim 1 of the instant application merely because Okayasu provides a heater cell having a MOSFET and a memory material. The memory cell, which is usually arranged in a matrix of a number of memory cells, is locally defined so that a heater cell arrangement, which is adapted to evenly heat up a large portion of the device area (i.e., in Okayasu, a portion including the timing generator block), cannot be used to locally heat up the memory material at a specified heating rate necessary to selectively address a specific memory cell. Furthermore, Okayasu does not disclose that a drain region of the field effect transistor is formed as a heater element and disposed in close proximity to a memory material.

A person skilled in the art is led away from the subject matter of claim 1 of the instant application because Okayasu intends to heat up a large portion of the CMOS device with an even temperature in order to achieve a temperature

compensation. Starting from the AAPA, a person skilled in the art has no motivation to consider Okayasu because neither a memory device nor a memory cell is disclosed therein. Okayasu also does not contain any indication that the heater circuit of Okayasu can be used in other devices other than CMOS devices.

With regard to claim 6 of the instant application, Oglesbee et al. disclose a thermal protective device including switching devices. The switch includes a diode in series with thermal resistor. No heating device is disclosed in Oglesbee et al., which can be used with the memory material known from the AAPA to result in a memory cell according to claim 6 of the instant application.

Starting from the AAPA, a person skilled in the art, looking for a suitable heating element, would not consider Oglesbee et al. because no heater element is shown therein. The diode disclosed in Oglesbee et al. is merely a Zener-diode, which is normally used as a voltage control device, not as a heating device. Therefore, even if the person skilled in the art would combine the AAPA with the teaching of Oglesbee et al., he or she would not reach the subject matter of claim 6 of the instant application.

It is noted that it is not the object of the invention of the instant application to provide a memory cell wherein a diode is to be protected from over-temperature due to continuous power dissipation.

In summary, none of the cited references shows a heating element disposed in close proximity to another element, which is an important feature of the invention of the instant application.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claims 1 and 6. Claims 1 and 6 are, therefore, believed to be patentable over the art and since all of the dependent claims are ultimately dependent on claims 1 or 6, they are believed to be patentable as well.

Applicant acknowledges the Examiner's statement in item 5 on page 8 of the above-mentioned Office action that claims 12-13 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Since claim 6 is believed to be patentable as discussed above and claims 12-13 are ultimately dependent on claim 6, they are

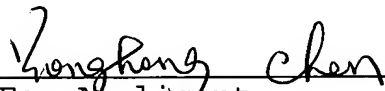
believed to be patentable in dependent form. A rewrite is therefore believed to be unnecessary at this time.

In view of the foregoing, reconsideration and allowance of claims 1-15 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate a telephone call so that, if possible, patentable language can be worked out.

If an extension of time for this paper is required, petition for extension is herewith made. Please charge any fees which might be due with respect to 37 CFR Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Respectfully submitted,



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November 30, 2004
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